

FEDERAL PUBLIC SERVICE COMMISSION
(Curriculum & Research Wing)

Schemes and Syllabi for Screening/Professional Tests as well as Descriptive Examination
Relating to Posts Advertised under Consolidated Advertisement No. 1/2021

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
1.	1/2021	Assistant Private Secretary (BS-16), in Different Ministries/ Divisions/ Departments	i. Second Class or Grade 'C' Bachelor's degree from a University recognized by HEC. ii. Minimum shorthand speed: 100 w.p.m. and typing speed: 50 w.p.m. iii. Must be computer literate.	<ul style="list-style-type: none"> • Typing Test with minimum Speed of 50 W.P.M • Shorthand Test with minimum Speed of 100 W.P.M • Computer Literacy Test: <ul style="list-style-type: none"> i Microsoft Word (Typing, Formatting) ii Microsoft Excel (Typing, Graph, Calculations) iii Microsoft Power Point (Typing, Formatting, Inserting Objects) Note: Computer literacy means proficiency in M.S Office (M.S Word, Power Point & Excel).	35 Marks 35 Marks 10 Marks 10 Marks 10 Marks
2.	03/2021	Deputy Assistant Director (Stenography) (BS-16), Secretariat Training Institute, Cabinet Secretariat, Establishment Division.	i. Second Class or Grade 'C' Bachelor's Degree from University recognized by HEC. ii. Three (3) years post qualification experience as Stenotypist/ Stenographer iii. Certificate in Urdu/ English Shorthand and Typing from a recognized institution. iv. Speed of 80 w.p.m. in Shorthand and 40 w.p.m. in Typing at 90% accuracy or comparable figures of speed and accuracy on computer. v. Literate in Information Technology.	<ul style="list-style-type: none"> • Typing Test (Urdu/English) with minimum Speed of 40 W.P.M with 90% accuracy • Shorthand Test (Urdu/English) with minimum Speed of 80 W.P.M • Computer Literacy Test: <ul style="list-style-type: none"> i Microsoft Word (Typing, Formatting) ii Microsoft Excel (Typing, Graph, Calculations) iii Microsoft Power Point (Typing, Formatting, Inserting Objects) 	35 Marks 35 Marks 10 Marks 10 Marks 10 Marks
3.	04/2021	Administrative Officer (BS-17), Islamabad Model Colleges, Federal Directorate of Education, Ministry of Federal Education And Professional Training.	i. Second Class or Grade 'C' Master's degree in Business Administration/ Public Administration/ Commerce or equivalent qualification from a University recognized by HEC. ii. Two (2) years post qualification experience in Accounts/ Administration.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Principles of Management • Human Resource Management • Financial Accounting • Rules of Business (as amended) • System of Financial Control and Budgeting 2006 • Public Procurement Rules, 2004

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
4.	06/2021	Montessori Teacher (Female) (BS-17) Ex- F.G Schools, Federal Directorate of Education, Ministry of Federal Education and Professional Training.	Second Class or Grade 'C' Master's degree recognized by HEC. OR Second Class or Grade "C" Bachelor's degree with Diploma in Montessori Teaching.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 Marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Montessori Philosophy • Child Psychology • Educational Techniques (children ages 2.5 to 6 years) • Sensorial Exercises for Intelligence enhancement. • Building of Mathematical Concepts • Building concepts for Cultural subjects-History, Geography, Science, Music etc.
5.	08/2021	Assistant Electronic Engineer (BS-16), Pakistan Meteorological Department, Cabinet Secretariat, Aviation Division.	i. Three (3) years Post Matric diploma in Electronics/ Instruments/ Mechatronics from a recognized institution. ii. Three (3) years post qualification experience in Operation & Maintenance of electronic equipment.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 Marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Kirchoff's Law • Principle of Transformer • Diodes and Transistors • Illumination and its Unit • Rectifiers • Star and Delta Connections • Router and Armature • Impedance • Lightning Arrestor • Isolators and its Types. • PNP and NPN Junctions • Type of Oil used in Transformers
6.	09/2021	Medical Officer (BS-17), Federal General Hospital, Islamabad, Ministry of National Health Services, Regulations and Coordination.	MBBS or equivalent qualification recognized by PM&DC.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Core courses of MBBS Degree Program. • Health Policies of the Government of Pakistan. • Care vs Cure for Health Management. • Major Challenges being faced by the Health Sector in Pakistan.

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
7.	12/2021	Zoologist (BS-17), Zoological Survey of Pakistan, Ministry of Climate Change.	i. Second Class or Grade 'C' Master's degree in Zoology or equivalent from a recognized University. ii. Two (2) years post qualification experience of research in Systematic Zoology or field surveys.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Eco System, • Classification of Fish, Reptiles, Mammals, • Classification of Molluscan, Echinoderm, • Mammalian Hormonal System, • Membrane System, • Mammalian Gametogenesis and Fertilization, • Multiple Alleles. • Mendel's law of inheritance, • Reproduction and Development,
8.	13/2021	Data Processing Assistant (BS-16), Federal Public Service Commission.	Second Class or Grade 'C' Bachelor's degree in Computer Science or Information Technology or equivalent qualification from a University recognized by the HEC.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Arithmetic Logical Unit, Memory (RAM, ROM) Types of RAM, Ports, etc. • Input and Output Devices, • Use of Microsoft Office (MS Word, MS Excel only) • Application and System Software, • Electronic Data Processing • Management Information System • Storage and Multimedia, • Network & Security Issues,
9.	14/2021	Research Officer/ Planning Officer/Survey Officer (BS-17), Economists Group, Ministry of Planning, Development and Special Initiatives.	First Class or Grade "B" Master's degree in Economics or equivalent qualification in Economics from recognized University with no 3 rd Division in entire academic career.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 marks	Part-I Vocabulary, Grammar usage, Sentence Structuring. Part-II <ul style="list-style-type: none"> • Qualitative and Quantitative Research Method • Empirical and Analytical Analysis Techniques • Collection and Compilation of Data for Economic Research • Pakistan's Economic Development Planning Process • Economic Development Planning: Typology Tools and Techniques • Bilateral Economic relationship of Pakistan with USA, China and European Union. • Importance of CPEC in Economic Growth of Pakistan.

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
10.	18/2021	Senior Auditor (BS-16), Pakistan Military Accounts Department, Ministry of Defence.	Second Class or Grade 'C' Bachelor's Degree in Business Administration (Finance/ Accounting)/ Commerce/ Economics/ Statistics/ Mathematics or equivalent from a University recognized by HEC. OR ICMA Operational Level Certificate from ICMA after Graduation.	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Professional Test=80 Marks	Part-I Grammar Usage, Sentence Structuring Part-II <ul style="list-style-type: none"> • Accounting Principles & Procedures, • Scrutiny of Record for Audit Purposes, • Journal, Ledger & Cash Book, • Preparation of Annual Budget, • Adjustment & Depreciation, • Financial Planning & Cost Accounting, • Heads of Account, Re-appropriation of Funds and Supplementary Grant, • Settlement of Audit Objections • Preparation of Pension Documents. • Public Procurement Rules, 2004
11.	20/2021	Lecturer (Male) (BS-17), A. Applied Psychology B. Arabic C. Botany D. Chemistry E. Commerce F. Computer Science G. Economics H. Education I. English J. Geography K. Health & Physical Education L. History M. Islamic Studies N. Mathematics O. Pakistan Studies P. Physics Q. Political Science R. Sociology S. Statistics T. Urdu U. Zoology Federal Directorate of Education, Islamabad, M/O Federal Education and Professional Training.	Second Class or Grade "C" Master's degree or equivalent in the relevant subject	Objective Type Test (MCQ) Part-I English = 20 marks Part-II Subject Test = 50 marks Part-III Professional Test = 30 marks Note: <ul style="list-style-type: none"> ▪ In Language Subjects (i.e Arabic, Urdu and English), English part for 20 marks will not be included. There will be 70% subject Test and 30% Professional Test. ▪ For the subject of Education, there should be two parts, part-I is English Test (20 Marks) and part-II is Professional Test (80 Marks). 	For (A) Applied Psychology Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II (Masters Level) <ul style="list-style-type: none"> ▪ Nature and Scope of Psychology ▪ Biological basis of Behaviour ▪ Developmental Psychology ▪ Social Psychology ▪ Educational Psychology ▪ Counselling Psychology ▪ Abnormal and Clinical Psychology ▪ Forensic Psychology ▪ Psychological Testing and Assessment Part-III <ul style="list-style-type: none"> ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (B) Arabic</u></p> <p><u>Part-I (Master's Level) (70 Marks)</u></p> <ul style="list-style-type: none"> ▪ History of Arabic literature ▪ Arabic Poetry at the Dawn of Islam ▪ Arabic Syntax ▪ Arabic Vocabulary, ▪ Arabic Grammar usage, ▪ Arabic Sentence Structure <p><u>Part-II (30 Marks)</u></p> <ul style="list-style-type: none"> ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation
					<p><u>For (C) Botany</u></p> <p><u>Part-I</u></p> <p>Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> ▪ Algae, ▪ Fungi, ▪ Bryophytes ▪ Pteridophytes ▪ Gymnosperms, ▪ Angiosperms, ▪ Plant Physiology, ▪ Ecology, ▪ Cytology, ▪ Genetics, <p><u>Part-III</u></p> <ul style="list-style-type: none"> ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (D) Chemistry</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> ▪ Nature, Properties & States of Matter, ▪ Electronic Structure, ▪ Bonding, ▪ Chemical Kinetics & Radioactivity, ▪ Synthetic Chemistry ▪ Polymers, ▪ Reaction Mechanism (electrophilic & nucleophilic substitution and addition reaction) ▪ Inorganic Chemistry, ▪ Thermodynamics, ▪ Electrochemistry, <p><u>Part-III</u></p> <ul style="list-style-type: none"> ▪ Teaching Techniques and Methodology ▪ Classroom Management and Discipline ▪ Testing and Evaluation
					<p><u>For (E) Commerce</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Auditing • Cost Accounting • Managerial Economics • Computer Application in Business • Islamic Principles of Banking & Finance • E-Commerce • Specialized financial Institutions • Salient features of Investment Analysis <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation,

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (F) Computer Science</u></p> <p><u>Part-I</u></p> <p>Vocabulary, Grammar Usage, Sentence Structuring</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Computer Hardware/Software, • Data Communication & Networking, • C/C++ Language, • Visual Basic, • Operating System Unix/Linux • Windows 7, 8 , 8.1, • Oracle/PLSQL, • System Analysis & Design. • Web Programming, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation,
					<p><u>For (G) Economics</u></p> <p><u>Part-I</u></p> <p>Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Micro Economics: Determination of market demand and supply • Macro Economics: Basic Economic Concepts • International Trade: Theories, Trade Restrictions & Trade Policy, • WTO and Developing Economies, • Monetary Theory & Public Finance, • Industrial Development in Pakistan • Interest Free Banking in Pakistan <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (H) Education</u></p> <p><u>Part-I (20 Marks)</u> Vocabulary, Grammar Usage, Sentence Structuring,</p> <p><u>Part-II (80 Marks)</u></p> <ul style="list-style-type: none"> • Development of Education in Pakistan, • Educational Reforms in Pakistan, • Education Policy 2009, its Targets and Achievements • Educational Psychology, • Educational Guidance & Counselling, • Educational Planning & Management, • Educational Administration and Supervision, • Classroom/Institutional Management and Discipline • Curriculum Development & Instructional Technology • Teaching Techniques & Methodology, • Testing & Evaluation. <p><u>For (I) English</u></p> <p><u>Part-I (Master's Level) (70 Marks)</u></p> <ul style="list-style-type: none"> • Vocabulary • Structuring of sentences. • Linguistics. • Grammar. • Syntax. • Diction. • Drama: Shakespeare (Hamlet; King Lear; Twelfth Night), William Congreve (The Way of the World), Shaw (Pygmalion; Heartbreak House), Harold Pinter (The Caretaker), Samuel Beckett (Waiting for Godot), Eugene O'Neill (Long Day's Journey into Night) <p><u>Part-II (30 Marks)</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation,

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (J) Geography</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Physical Geography • Landform development, climate, oceans & seas, factor of climate and environmental change • Geography of Pakistan, • Human Geography (Geographic pattern of culture, Ethnicities and Nationalities, Economic Indicators, Social Indicators, Health Indicators, Renewable Resources, Recycling Resources, Sustainable resources. The Demographic Transition) • Political Geography (State, National and the Nation-State Geopolitics of uneven development) • Statistical Geography, • Climatology/Metrology, • Environmental Geography, • GIS Techniques, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation, <p><u>For (K) Health & Physical Education</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Philosophy of Physical Education, • Curriculum Development in Physical Education, • Psychology of Physical Education, • Rules of games, • Basics of Human Anatomy • Administrative and Management in Sports, • Sports Nutrition, • Trauma and Rehabilitation, • Test, Measurement and Evaluation in Physical Education & Sports • Athletic Injuries, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p>For (L) History</p> <p>Part-I Vocabulary, Grammar Usage, Sentence Structuring</p> <p>Part-II (Masters Level)</p> <ul style="list-style-type: none"> • The Prophetic Age (570-632) • The Pious Caliphate (632-660) • Political System of Islam under the Prophet (PBUH) and the Pious Caliphate (Nature of Islamic State, Form of Govt, Function of Islamic State, Caliphate Shura or the Consultative body and its role) • Institutional Development of the Muslim Civilisation (Umayyad, Abbasid, Crusade) • Muslim Freedom Movement in India (1857-1947) • Ideology of Pakistan • The Kashmir Issue • Pakistan and Neighbouring Countries • Research Methodology & Philosophy of History <p>Part-III</p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation
					<p>For (M) Islamic Studies</p> <p>Part-I Vocabulary, Grammar Usage, Sentence Structuring</p> <p>Part-II (Masters Level)</p> <p>قرآن کا بنیادی موضوع / متن ☆</p> <p>سیرت النبی ﷺ ☆</p> <p>فقہ: جامعیت، اختلاف رائے اور عصر حاضر کے تناظر میں مذہب کی تشریح۔ ☆</p> <p>تعارف اسلام ☆</p> <p>انسانی زندگی میں دین کی اہمیت ☆</p> <p>اسلام کے نمایاں پہلو ☆</p> <p>اسلامی عقائد کے انفرادی اور اجتماعی اثرات ☆</p> <p>انسانی حقوق۔ اسلام کی نظر میں ☆</p> <p>اسلام اور عصر حاضر کے چیلنجز ☆</p> <p>اسلامی نظام حکمرانی کا ڈھانچہ ☆</p> <p>سرکاری ملازمین کی ذمہ داریاں ☆</p> <p>اسلامی ضابطہ حیات ☆</p>

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation <p><u>For (N) Mathematics</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Calculus/Differentiation, Integration, Limits of continuity • Communication Skills for Mathematicians, • Computing Tools for Mathematicians, • Classical Mechanics, • Mathematical Statistics, • Mathematical Spaces (Sets, Vector Spaces, Metric Spaces, topological spaces Tensors, • Differential Equations. <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation <p><u>For (O) Pakistan Studies</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Ideology of Pakistan in light of speeches and statements of Allama Iqbal and Quaid-e-Azam • Pakistan Movement 1857-1947 • Current Issues of Pakistan (challenges to National Security, Economic Challenges, Pakistan's War on Terror, • Geography of Pakistan <ul style="list-style-type: none"> ✓ Land and People of Pakistan ✓ Pakistan and CPEC ✓ Natural Resources of Pakistan, • Latest Constitutional Amendments, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (P) Physics</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Mechanics • Heat and Thermodynamics, • Waves and Optics, • Electrostatic, • Electricity and Magnetism, • Modern and Quantum Physics, • Nuclear Physics, • Basic Solid State Physics, <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation <p><u>For (Q) Political Science</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Western Political Thought (Plato, Aristotle, Machiavelli, Montesquieu, Hobbes, Locke, Rousseau, Marx, Lenin, Frances Fukuyama) • Muslim Political Thought (Al-Farabi, Al-Mawardi, Imam Ghazali, Ibn Khaldun, Shah Waliullah, Allama Muhammad Iqbal) • State System: Nature and Emergence, Islamic Concept • Political Institutions and Role of Government • Government and Politics in Pakistan: Analysis of 1956, 1962, 1973 Constitutions and Constitutional Amendments • Comparative Study of Political System (Turkey, India, Malaysia and China) <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation,

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p><u>For (R) Sociology</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Meaning, Characteristics and Elements of Culture • Society: Meaning and Characteristics • Social Contract Theory & Organismic Theory • Sociological Theories (Ibn-i-Khaldun, Spencer, Max Weber, Karl Marx) • Methods of Sociological Research, • Social Institutions: Nature, Genesis & Function • Mechanism of Social Control: Formal & Informal • Social and Cultural Change & Social Policy: Processes & Effects • Community organization and development • Social Problems in Pakistan <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation, <hr/> <p><u>For (S) Statistics</u></p> <p><u>Part-I</u> Vocabulary, Grammar Usage, Sentence Structuring.</p> <p><u>Part-II (Masters Level)</u></p> <ul style="list-style-type: none"> • Measures of Central Tendency, • Measures of Dispersion or Variation, • Regression and Correlation, • Index Numbers, • Probability Theory, • Probability Distributions, • Presentation of Data • Time Series Analysis, • Statistical Inference, • Sampling Theory and Techniques, • Analysis of Variance, • Experimental Design <p><u>Part-III</u></p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology • Classroom Management and Discipline • Testing and Evaluation

S. No	Case No. F.4-	Particulars of Post(s)	Qualifications/Experience for the Posts	Test Specification	Topics of Syllabi
					<p>For (T) Urdu Part-I (Master's Level) (70 Marks)</p> <p style="text-align: right;"> ☆ اردو ذخیرہ الفاظ ☆ ☆ اردو جملے کا ڈھانچہ ☆ ☆ اردو قواعد کا استعمال ☆ ☆ غالیات ☆ ☆ اقبالیات ☆ ☆ سدس جانی ☆ ☆ میر تقی میر کی شاعری ☆ ☆ طنز و مزاح: مشتاق احمد یوسفی کی نظر میں ☆</p> <p>Part-II (30 Marks)</p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation, <p>For (U) Zoology Part-I Vocabulary, Grammar Usage, Sentence Structuring Part-II (Masters Level)</p> <ul style="list-style-type: none"> • Eco System, • Classification of Fish, Reptiles, Mammals, • Classification of Mollusks, Edinodermata, • Mammalian Hormonal System, • Membrane System, • Mammalian Gametogenesis and Fertilization, • Multiple Alleles. • Mendelian laws of inheritance, • Reproduction and Development, <p>Part-III</p> <ul style="list-style-type: none"> • Teaching Techniques and Methodology, • Classroom Management and Discipline, • Testing and Evaluation,

Schemes and Syllabi for Written Examination (Descriptive) for All Posts in BS-18 & BS-19 included in Consolidated Advertisement No. 1/2021

PAPER-I: ENGLISH

Max Marks: 100

Time Allowed: 3 Hours

- (i) **English Essay-50 Marks:** Candidates will be required to write an Essay in English comprising **1500 words** from a set of **six given topics**. Candidates are expected to reflect comprehensive and research based knowledge on a selected topic. Candidate's articulation, expression and technical approach to the style of English Essay writing will be examined.
- (ii) **English (Composition and Précis)-50 Marks:**
The examination will test the candidate's abilities to handle Précis Writing, Reading Comprehension, Sentence Structuring, Translation, Grammar and Vocabulary, etc.
- Précis Writing (10 marks):** A selected passage with an orientation of generic understanding and enough flexibility for compression shall be given for précising and suggesting an appropriate title.
- Reading Comprehension (10 marks):** A selected passage that is rich in substance but not very technical or discipline-specific shall be given, followed by five questions, each carrying 2 marks.
- Grammar and Vocabulary (10 marks):** Correct usage of Tense, Articles, Prepositions, Conjunctions, Punctuation, Phrasal Verbs, Synonyms and Antonyms etc.
- Sentence Correction (5 marks):** Ten sentences shall be given each having a clear structural flaw in terms of grammar or punctuation. The candidates shall be asked to rewrite them with really needed correction only, without marking unnecessary alterations. No two or more sentences should have exactly the same problem, and 2-3 sentences shall be based on correction of punctuation marks.
- Grouping of Words (5 marks):** A random list of ten words of moderate standard (neither very easy nor utterly unfamiliar) shall be given, to be grouped by the candidates in pairs of those having similar or opposite meaning, as may be clearly directed in the question.
- Pairs of Words (5 marks):** Five pairs shall be given of seemingly similar words with different meanings, generally confused in communication, for bringing out the difference in meaning of any five of them by first explaining them in parenthesis and then using them in sentences.
- Translation (5 marks):** Ten short Urdu sentences involving structural composition, significant terms and figurative/idiomatic expressions shall be given, to be accurately translated in English.

SUGGESTED READINGS

Sr. No.	Title	Author
1.	English Grammar in Use	Raymond Murphy (Cambridge University Press)
2.	Practical English Usage	M. Swan (Oxford University Press)
3.	The Little, Brown Handbook	H. Ramsey Flower & Jane Aaron (The Little, Brown & Co; Harper Collins)
4.	A University English Grammar	R. Quirk & S. Greenbaum (ELBS; Longmans)
5.	Write Better, Speak Better	Readers Digest Association
6.	Modern English in Action	Henry Christ (D.C. Heath & Co.)
7.	Exploring the World of English	Syed Saadat Ali Shah

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	02/2021
Particulars of post	Senior Research Officer (BS-18), MVRDE, Ministry Of Defence Production.
Minimum Qualification & Experience:	Bachelor's Degree of Engineering in Mechanical / Mechatronics with minimum 5 years post qualification experience in one or more branches of research/ design/ development/ production. OR Retired Major of EME having Engineering degree in Mechanical / Mechatronics. OR Second Class or Grade 'C' M.Sc in Physics/ Maths / Chemistry or Metallurgy with five (5) years post qualification experience of research in the relevant subject in reputable organization.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II & III.

Part-II (Professional): 50 Marks (Subjective)**I. Electricity & Electronics**

Electricity & Magnetism; Electrical potential, Resistance, Laws of resistance, Conductance, Conductivity, Impedance, Ohm law, Resistance in series and in parallel, practical resistors, work, power, Energy, Joule's law of electric field intensity, Gauss's Theorem, Capacitor, Capacitance, Capacitors in parallel and series. Force on a conductor in a magnetic field, electrical and magnetic circuits, leakage flux, Relation between magnetism and electricity, Induced emf, induced current and directions, Faraday's laws of electromagnetic inductions, Lenz's law, dynamically induced emf, Self inductance, mutual inductance and inductance in series/parallel, magnetic hysteresis, Energy stored in magnetic field, Generation of alternating currents and voltages.

II. Electrical Machines

DC Motors: Shunt, Series and Compound Motors, Speed and Torque Relations. Transformers: Principle, Construction, Voltage transformation ratio, Step-up/ step- down transformers, Copper & Iron Losses, Transformer connections; delta and star.

AC Motors: Induction motor, Synchronous motor, Performance, Efficiency. Single phase and three phase Motors.

Generators: Principle, Construction, Different components of generators. AC Generators, DC Generators.

III. Electronics:

Transistors: types, calculations of voltages and currents in simple transistor circuits.

Amplifier & Oscillators: Working and classification of amplifiers, Class A and Class B Amplifiers, Feedback Amplifiers, Types of Feedback, RC Oscillators.

Integrated Circuits: OP Amps, timers, flip flop, converters, filters.

Telecommunications: EM theory, antennas, antenna gain, free space loss, fading. Modulations (AM, FM, PM, PWM, Delta, FSK, ASK, PSK), Error correction, Demodulation, Detectors, Transmitter, Receivers.

IV. Electricity and Magnetism

Electric field due to point charges, Gauss' law Electric potential and Poisson and Laplace's equation Dielectric medium and Polarization; Capacitance; Moving charges and resulting magnetic field; Ampere's law; Vector potential; Magnetic properties of matter; Transient current; Faraday's law of electromagnetic induction; Alternating current and LRO circuit. Maxwell's equations; Poynting theorem and Poynting Vector. Maxwell's equations in integral and differential form.

V. Mechanical Engineering Fundamentals

Mechanics and Strength of Materials: Concept of Stress and Strain, bending, torsion, geometric properties of areas, principal stresses, Tensile testing, Stress- Strain curve, Difference between Engineering and True Stress & Strain, Shear Stress & Strain, Concept of elastic and plastic deformation, Yield & ultimate Tensile strengths, Elongation, Toughness and Resilience, Ductility and Malleability, Hardness Testing, Brinell and Rock well Hardness test, bending moment,

Fluid Mechanics: Properties and basics of fluid mechanics, loss of head, power transformation by fluids, pumps, turbines. Fluid static's, Fluid dynamics, Types of flow: Turbulent and Laminar, Reynold's number.

Heat and Thermodynamics : Perfect gas and Vander Waals equation; Three Laws of Thermodynamics, internal energy, temperature, entropy. Thermal properties of Simple system production and measurement of low temperatures; kinetic theory of gases; Maxwellian distribution of molecular velocities; Brownian motion, Transport phenomena. Classical Maxwell-Boltzmann Statistics and its application; Quantum Bose—Einstein and Fermi—Dirac Statistics.

Manufacturing: Different manufacturing processes like Casting, Forging, Machining, Rolling, Extrusion, Wire-drawing, welding, Turning (lathe), Milling, Shaping, Gear cutting, Drilling, Fitting.

Part-III: 25 Marks (Subjective)

(Human Resource, Financial Management and Quality Management)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

II. Basic Concept of Quality Management

ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

SUGGESTED READINGS

S. No.	Title	Author
1.	Electrical Technology	B.L. Theraja
2.	Electronic Devices and Circuits.	Bogart
3.	DC Machines	P.C. Sen
4.	Semiconductors	Manzar Saeed
5.	Modern Digital and Analog Communication	B.P.Lathi
6.	Fluid mechanics with engineering applications	Finnemore/ Franzini.
7.	Schaum Outline Series; Strength of Materials	William A. Nash
8.	Fluid Mechanics	Lewitt
9.	Manufacturing Processes for Engineering Materials	Kalpakjian
10.	Human Resource Management	H.T.Graham & Roger Bennett
11.	Management	James A.F.Stoner, R.Eward Freeman, Daniel R.Gilbert Jr.

PAPER-II: PROFESSIONAL

Max Marks: 100

Time Allowed: 3 Hours

Case No.	05/2021
Particulars of post	Subject Specialist (Urdu) (BS-18), National Education Assessment System, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's degree in the relevant subject. ii. Five (5) years post qualification experience in the field of Development / Teaching.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II.

Part-II (Professional) (Subjective) : 75 Marks**۱۔ اردو ادب کا مطالعہ**

- اردو زبان و ادب کی اسلامی شناخت
- بیسویں صدی کی ادبی تحریکیں
- پاکستانی ادب کی اصطلاح: تشکیل و روایت اور ارتقاء

۲۔ شعری ادب کا تنقیدی مطالعہ**الف۔ دورِ قدیم**

- بیر (غزل - انتخاب میر مولوی مہدی الحق)
- غالب (دیوان غالب)
- حالی (مسدس)
- اقبال (طلوع اسلام، مختصر راہ، مسجدِ قرطبہ)

ب۔ دورِ جدید

- فیض (غزل - دستِ مہیا)
- راشد (نظم - ایران میں انجمنی)
- مجید امجد (نظم - شبِ رفتہ)
- ناصر کاظمی (غزل - برگِ نئے)

۳۔ نثری ادب کا تنقیدی مطالعہ**الف۔ غیر افسانوی نثر**

- شیلی (سیرت النبی ﷺ، جلد اول)
- مولوی عید الحق (خاکے، چند ہم عصر)

ب۔ افسانوی نثر

- منٹو (افسانے منٹو کے ہیں افسانے: مرتب ڈاکٹر انوار احمد، ڈاکٹر اے بی اشرف)
- احمد ندیم قاسمی (افسانے، کپاس کے پھول)
- مشاق احمد یوسفی (ظفر و مزاج، آبِ گم)

۳۔ تلخیص

۵۔ مضمون

SUGGESTED READINGS

- | | |
|---|--|
| ۱۔ تختیدا ورجیدیر اُردو تہتید | ۱۔ ڈاکٹر وزیر آغا |
| ۲۔ اُردو ادب کی تحریکیں | ۲۔ ڈاکٹر انور سدید |
| ۳۔ آپ کوثر | ۳۔ شیخ محمد اکرام |
| ۴۔ درود کوثر | ۴۔ شیخ محمد اکرام |
| ۵۔ موج کوثر | ۵۔ شیخ محمد اکرام |
| ۶۔ اُردو تہتید میں پاکستانی تصوف تو میت | ۶۔ ڈاکٹر روبینہ شہناز |
| ۷۔ قبالیات کے سو سال | ۷۔ مرتبین: ڈاکٹر فریح الدین ہاشمی،
ڈاکٹر سہیل عمر، ڈاکٹر وحید عشرت۔ |
| ۸۔ تاریخ اویات مسلمانان پاکستان و ہند | ۸۔ ترتیب نو: ڈاکٹر خولجہ محمد زکریا |
| ۹۔ اُردو ادب کے پچاس سال | ۹۔ مرتب: ڈاکٹر نواز شعلی |

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	07/2021
Particulars of post	Area Education Officer (BS-19) , Federal Directorate of Education, Ministry of Federal Education and Professional Training.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's degree in Business Administration/ Public Administration/ Educational Planning and Management/ Human Resource Management/ Management Studies/ Project Management/ Development Studies from a University recognized by HEC. ii. Twelve (12) years post qualification experience in the field of Educational Management/ Monitoring/ Supervision/ Evaluation.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II & III.

Part-II (Subjective) : 50 Marks**(Public Administration & Office Management)**

- I. Public Administration:** Nature and scope, Role of Public Administration in a modern Welfare State;
- II. Bureaucracy:** Concept of Bureaucracy, Theories of Bureaucracy, Ecology of Bureaucracy; Bureaucracy; of Pakistan as a Change Agent;
- III. Administrative Leadership:** Approaches to the study of Leadership, Forms of Leadership, Leadership qualities;
- IV. Administrative Accountability:** Internal and External Controls; Executive Control, Legislative Control, Judicial Control, Ombudsman, Public Opinion and Pressure Groups; Problems of Administrative Accountability in Pakistan;
- V. Planning:** Types of Plans, Planning Process; Principles of Planning, Planning Machinery in Pakistan;
- VI. Controlling and Co-Ordination:** Forms of Controls, Controls, Control Mechanism, the process of Control, Principles of Controlling; Principles Coordination; Machinery for Coordination; Problems of Coordination in Public Administration in Pakistan.
- VII.** Civil Servant Act 1973 and Rules made thereunder;
- VIII.** Federal Public Service Commission Ordinance 1977 and Rules made there under;
- IX.** Rules of Business 1973;
- X.** Secretariat Instructions and Office Procedures;
- XI.** PPRA Ordinance 2002 and Rules 2004.

Part-III (Professional) (Subjective) : 25 Marks

- I. Development of Curriculum and Instructional Material**
 - Elements of Curriculum.
 - Curriculum Development Process: Need Assessment, Formulation of Aims and Objectives, Taxonomies of Educational Objectives, Selection of Content, Development of Curricular Materials.
- II. Process of Teaching and Teaching Strategies**
 - Process of Classroom Communication
 - Factors affecting Classroom Communication
 - Barriers to Classroom Communications
 - Use of Instructional Materials and Media
- III. Educational Assessment and Evaluation**
 - Concept of Classroom Assessment and Evaluation
 - Distinction between Assessment, Evaluation and Measurement
 - Approaches to Evaluation: Formative Evaluation; Summative Evaluation
 - Types of Test: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Test
 - Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability
- IV. Research Methods in Education**
 - Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
 - Research Proposal and Report Writing.

SUGGESTED READINGS

S.No.	Title	Author
1.	An Introduction to the Public Administration	E.N. Cladden
2.	Bureaucracy: Modern Society	Pebr, M.Blau.
3.	Public Administration for a Welfare State	Paul Ableby
4.	The Bureaucracy of Pakistan	Charles F. Kennedy
5.	Research in Education	JW Best
6.	Integrating Education Technology into Teaching	Roblyer
7.	Curriculum Development	S. M. Shahid
8.	Educational Measurement and Evaluation	S. M. Shahid
9.	Educational Administration	S. M. Shahid

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	10/2021
Particulars of post	Deputy Director (BS-18), Marine Fisheries Department, Ministry of Maritime Affairs.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' Master's Degree in Zoology/ Fisheries/ Biology/ Chemistry/ Marine Biology/ Fresh Water Biology and Fisheries/ Industrial Fishing. ii. Five (5) years post qualification experience of Fisheries.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II.

Part-II (Professional) (Subjective) : 75 Marks**I. Animal Diversity-Chordata**

- Hemichordates and Invertebrate Chordates: Evolutionary Perspective: Phylogenetic Relationships and considerations.
- Fishes: Structural and functional adaptations of fishes.
- Amphibian: Movement onto land and early evolution of terrestrial vertebrates.
- Reptiles: Characteristics of reptiles, adaptations in reptilians.
- Birds: Migration and navigation, adaptations.
- Mammal: Structural and functional adaptations of mammals.

II. Principles of Animal Life

- The chemical basis of animal life: Brief introduction to bio-molecules; carbohydrates, lipids, proteins and nucleic acids.
- Tissues Types: epithelial, connective, muscle and nervous tissue; organs and organ systems.
- Ecological Concepts: Interactions, Concepts and components of ecosystem, Food chain, Food web, Biogeochemical cycles, Forest, Biomes, Wildlife conservation and management, Environmental pollution, Green house effect, Acid rain, Global warming.
- Evolution: Darwinian evolutionary theory based on natural selection and the evidence, Microevolution: Genetic variation and change within species, Macroevolution: Species and speciation (Allopatric, Parapatric and Sympatric speciation)

III. Animal Form and Function

- Digestion and Nutrition: Feeding mechanism, Digestion, Organization and regional function of alimentary canals, Regulation of food intake, Nutritional requirements
- Internal Fluids and Respiration: Internal fluid environment, Composition of blood, Circulation and respiration mechanisms
- Chemical Coordination: Endocrine System; Vertebrate endocrine glands and types of hormones, Mechanism of hormones action,
- Animal behavior: Learning, Habituation, Insight learning, latent learning, classical learning: Control of Behavior; social behaviour.

IV. Principles of Fish Biology

- **Fish morphology:** Head (size, shape, and orientation); Scales (types, arrangements, coloration, scale less fishes); Operculum; Fins, fin rays and fin spine (dorsal, pectoral, caudal, anal); Barbel (upper lip barbels, lower lip barbels); **Anatomy:** Skeleton (skull, backbone, spines); Brain and spinal cord; Gills (Number, size, arrangements); Vital organs (heart, liver, kidney); Viscera and mesenteries (swim bladder, stomach, spleen, pancreas, intestine, gonads).
- **Systematic:** Identification of fishes up to; Families; Order; Genus; Species; Feeding groups of fishes; Herbivore; Plankton eater; Larvivore; Carnivore; Voracious; **Ecology of fishes:** Freshwater; Brackish water ; Marine

SUGGESTED READINGS

S. No.	Title	Author
1.	Integrated Principles of Zoology.	Hickman, Jr. C.P., Keen, S. L, Larson, and Eisenhour, D.J.
2.	Zoology	Miller, S. A. and Harley, J. B.
3.	Biology	Campbell, N.A.
4.	Evolution. 2nd Edition	Douglas Futuyma
5.	Kestin Farmed Fish Quality, 2002	Kestin, S. C. and Warris, P.D.
6.	Aquaculture	Brenabe, G.
7.	Text book of Fish Culture: Breeding and Cultivation. 1973	Huet M.
8.	Animal behavior: An Evolutionary Approach. 9 th Edition	John Alcock

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	11/2021
Particulars of post	Law Officer (BS-18), Directorate General of Trade Organizations, Ministry of Commerce.
Minimum Qualification & Experience:	i. Second Class or Grade 'C' LLB degree from a University/ College recognized by the HEC. ii. Seven (7) years post qualification experience in Legal/Judicial matters or as an Advocate in the field of Trade including Textiles issues.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II.

Part-II (Law) (Subjective) : 75 Marks**I. Definitions of Crime****II. All Provisions of:**

- i. Concept of arbitration, arbitration with or without intervention of court and in civil suits.
- ii. Establishment of Civil Courts with their Original & Appellate Jurisdiction.
- iii. The Code of Civil Procedure, 1908
- iv. Pakistan Penal Code, 1860
- v. Qanun-e-Shahdat Order, 1984
- vi. Criminal Procedure Code, 1898

SUGGESTED READINGS

S.No.	Title	Author
1.	Pakistan Penal Code, 1860	M. Mahmood
2.	Criminal Procedure Code, 1898	Shaukat Mahmood
3.	Law of Evidence	Justice (R) Khalid ur Rahman Khan as adapted from Principles and Digest of the Law of Evidence by M. Monir
4.	Qanun-e-Shahdat Order, 1984	
5.	The Code of Civil Procedure, 1908	Aamir Raza A. Khan
6.	The Arbitration Laws in Pakistan	M. Mahmood
7.	Civil Courts Ordinance, 1962	Nisar Ahmad Nisar

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	15/2021
Particulars of post	Pathologist (BS-18), Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence.
Minimum Qualification & Experience:	i. MBBS with FCPS from CPSP. ii. Five (5) years post FCPS experience in Government Organization as Pathologist

Part-I: (MCQ)**25 Marks**

25 MCQ Questions on Part-II & Part-III.

Part-II: (Qualification Based) (Descriptive)**50 Marks**Core courses of **MBBS Degree****Part-III: (Professional) (Descriptive)****25 Marks**Core courses of FCPS in **Pathology**.

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	16/2021
Particulars of post	Senior Speech Therapist (BS-18), Armed Forces Institute of Rehabilitation Medicine, Ministry of Defence.
Minimum Qualification & Experience:	i. Master in Speech and Language therapy from a University recognized by HEC ii. Five (5) years post qualification experience in Speech Therapy.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II.

Part-II (Professional) (Subjective) : 75 Marks

- I. **APHASIA** ; Assessment protocol Informal and with Formal Standardize international tools i.e BDAE, BASA,CLQT . therapeutics approaches / technique
- II. **DYSARTHRIA**; Types of dysarthria's , their assessment and therapeutics approaches
- III. **APRAXIA**; Types of apraxia, their Formal & Informal assessment/ evaluation protocols and therapeutic s approaches/ techniques
- IV. **ARTICULATION**; Types of articulation and phonation problems, their Formal & Informal assessment/ evaluation protocols and therapeutic s approaches/ techniques
- V. **STAMMERING**; Types of stuttering /stammering problems, their Formal & Informal assessment/evaluation severity labeling protocols, therapeutics approaches/ techniques. Fluency shaping and modification therapy with beginning, intermediate & advance stuttrer.
- VI. **VOICE**; Types of voice problems, their qualitative/ perceptual and quantitative/ objective assessment, evaluation of pitch/frequency, loudness/intensity and quality tools i.e. Speech Lab, Glottal Enterprises & Sono-speech alongwith therapeutics approaches/ techniques
- VII. **HEARING IMPAIRMENT**; types and severity of hearing disorders, their Formal & Informal assessment/evaluation methods i.e. PTA, BERA ASSR, Auto acoustic emission. Therapeutics approaches/ techniques i.e. Audio-Visual, signs language , total communication approaches qualities of hearing aids and role of speech therapist in before and after cochlear implant .
- VIII. **BEHAVIOR DISORDERS**; Autism Spectrum Disorder, Attention Deficit Hyperactivity Disorder & Asperger. Types and severity of disorders, their Formal & Informal assessment/ evaluation protocols i.e. CARS.

SUGGESTED READINGS

S. No.	Title	Author
1.	Stuttering and integration approaches & treatments	Barry Guitar
2.	Manual of aphasia & aphasia therapy	Nancy Helm –Estabrooks & Martin L. Albert
3.	The Voice Diagnostic protocols	Shaheen N Awan
4.	Oral Placement Therapy	Sara Rosenfeld - Johnsons

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	17/2021
Particulars of post	Assistant Professor (Mathematics) (Male) (BS-18), F.G. Colleges, Directorate of Federal Government Educational Institutions (Cantts/Garrisons), Ministry of Defence.
Minimum Qualification & Experience:	Ph.D. Degree in the relevant subject and one (1) year post qualification teaching experience at College/ University level. OR M.Phil in the relevant subject with three (3) years post qualification teaching experience at College/ University level. OR Second Class or Grade 'C' Master's Degree in the relevant subject with five (5) years post qualification teaching experience at College/ University level.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II & Part-III.

Part-II (Mathematics) (Subjective) : 50 Marks**I. Vector Calculus**

Vector algebra; scalar and vector products of vectors; gradient divergence and curl of a vector; line, surface and volume integrals; Green's, Stokes' and Gauss theorems.

II. Statics

Composition and resolution of forces; parallel forces and couples; equilibrium of a system of coplanar forces; centre of mass of a system of particles and rigid bodies; equilibrium of forces in three dimensions.

III. Dynamics

- Motion in a straight line with constant and variable acceleration; simple harmonic motion; conservative forces and principles of energy.
- Tangential, normal, radial and transverse components of velocity and acceleration; motion under central forces; planetary orbits; Kepler laws;

IV. Ordinary differential equations

- Equations of first order; separable equations, exact equations; first order linear equations; orthogonal trajectories; nonlinear equations reducible to linear equations, Bernoulli and Riccati equations.
- Equations with constant coefficients; homogeneous and inhomogeneous equations; Cauchy-Euler equations; variation of parameters.
- Ordinary and singular points of a differential equation; solution in series; Bessel and Legendre equations; properties of the Bessel functions and Legendre polynomials.

V. Numerical Methods

- Solution of nonlinear equations by bisection, secant and Newton-Raphson methods; the fixed- point iterative method; order of convergence of a method.
- Solution of a system of linear equations; diagonally dominant systems; the Jacobi and Gauss-Seidel methods.

- Numerical solution of an ordinary differential equation; Euler and modified Euler methods; Runge- Kutta methods.

Part-III (Professional) (Subjective) : 25 Marks

I. Development of Curriculum and Instructional Material

- Elements of Curriculum.
- Curriculum Development Process: Need Assessment, Formulation of Aims and Objectives, Taxonomies of Educational Objectives, Selection of Content, Development of Curricular Materials.

II. Process of Teaching and Teaching Strategies

- Process of Classroom Communication
- Factors affecting Classroom Communication
- Barriers to Classroom Communications
- Use of Instructional Materials and Media

III. Educational Assessment and Evaluation

- Concept of Classroom Assessment and Evaluation
- Distinction between Assessment, Evaluation and Measurement
- Approaches to Evaluation: Formative Evaluation; Summative Evaluation
- Types of Test: Essay Type; Objective Type: Multiple Choice, True-False Items, Matching Type; Principles of Construction of these Test
- Characteristics of a Good Test: Validity, Reliability, Objectivity, Usability

IV. Research Methods in Education

- Research Instruments: Questionnaire: Interview; Test; Observation; Rating Scale
- Research Proposal and Report Writing.

SUGGESTED READINGS

S.No.	Title	Author
1.	An Introduction to Vector Analysis	Khalid Latif,
2.	Introduction to Mechanics	Q.K. Ghorl
3.	An Intermediate Course in Theoretical Mechanics	Khalid Latif,
4.	Differential Equations with Boundary Value Problems	D. G. Zill and M. R. Cullen
5.	Elementary Differential Equations	E.D. Rainville, P.E. Bedient and R.E. Bedient
6.	Elements of Numerical Analysis	F. Ahmad and M.A Rana
7.	Mathematical Methods	S. M. Yousaf, Abdul Majeed, Muhammad Amin
8.	Research in Education	JW Best
9.	Integrating Education Technology into Teaching	Roblyer
10.	Curriculum Development	S. M. Shahid
11.	Educational Measurement and Evaluation	S. M. Shahid
12.	Educational Administration	S. M. Shahid

PAPER-II: PROFESSIONAL**Max Marks: 100****Time Allowed: 3 Hours**

Case No.	19/2021
Particulars of post	Deputy Director (BS-18), Ministry of Religious Affairs & Interfaith Harmony.
Minimum Qualification & Experience:	ii. Second Class or Grade 'C' Master's Degree in Islamic History/ Islamic Studies/ Arabic/ Islamic Jurisprudence/ L.L.B. (Shariah) or equivalent qualification from a University recognized by HEC. iii. Five (5) years post qualification Teaching/ Research Experience in Islamic History/ Islamic Studies/ Arabic/ Islamic Jurisprudence in University/ College/ Research Institute or practicing as Lawyer dealing with Shariah cases.

Part-I: 25 Marks (MCQ)

- 25 MCQ Questions on Part-II & Part-III.

Part-II (Subjective) : 50 Marks
(Public Administration & Office Management)

- I. **Public Administration:** Nature and scope, Role of Public Administration in a modern Welfare State;
- II. **Bureaucracy:** Concept of Bureaucracy, Theories of Bureaucracy, Ecology of Bureaucracy; Bureaucracy; of Pakistan as a Change Agent;
- III. **Administrative Leadership:** Approaches to the study of Leadership, Forms of Leadership, Leadership qualities;
- IV. **Administrative Accountability:** Internal and External Controls; Executive Control, Legislative Control, Judicial Control, Ombudsman, Public Opinion and Pressure Groups; Problems of Administrative Accountability in Pakistan;
- V. **Planning:** Types of Plans, Planning Process; Principles of Planning, Planning Machinery in Pakistan;
- VI. **Controlling and Co-Ordination:** Forms of Controls, Controls, Control Mechanism, the process of Control, Principles of Controlling; Principles Coordination; Machinery for Coordination; Problems of Coordination in Public Administration in Pakistan.
- VII. Civil Servant Act 1973 and Rules made thereunder;
- VIII. Federal Public Service Commission Ordinance 1977 and Rules made there under;
- IX. Rules of Business 1973;
- X. Secretariat Instructions and Office Procedures;
- XI. PPRA Ordinance 2002 and Rules 2004.

Part-III (Subjective): 25 Marks

(Human Resource, Financial Management, Quality Management)

I. Human Resource and Financial Management

Definition, Significance and Scope of Human Resource Management; Organization—Types of Organization, Theory of Organization, Principles of Organization, Organization of the Federal and Provincial Governments, Public Sector Enterprises; Approaches to Human Resource Management. Personnel Administration—Tools of Personnel Management: Selection, Training, Promotion, Compensation, Discipline; Communication, Communication Channels and Principles of Public Relations; Human Behaviour and Organizations Administration.—Elements of Financial Administration, Performance Programmed Budgeting, Capital Budget, Principles of Budgeting, Auditing and Accounting.

II. Basic Concept of Quality Management

ISO-9000, ISO-13000, other certifications regarding quality measurement; management, management for Results, Setting Performance Goals and Targets; Job Analysis: Job Description, Job Specification, Performance Evaluation;

SUGGESTED READINGS

S. No.	Title	Author
1.	An Introduction to the Public Administration	E.N. Cladden
2.	Bureaucracy: Modern Society	Pebr, M.Blau.
3.	Public Administration for a Welfare State	Paul Ableby
4.	The Bureaucracy of Pakistan	Charles F. Kennedy
5.	Human Resource Management	H.T.Graham & Roger Bennett
6.	Management	James A.F.Stoner, R.Eward Freeman, Daniel R.Gilbert Jr.